What is claimed is:

1.   A packet transmitting method comprising the steps of:

controlling a timing of packet transmission in a transmission terminal on a packet network; and

controlling the amount of data to be transmitted per unit time from the transmission terminal to the network.

2.   The packet transmitting method according to claim 1, wherein the amount of data to be transmitted to the network per unit time is dynamically changed.

3.   The packet transmitting method according to claim 1, wherein a packet is transmitted at an interval according to a packet size.

4.   The packet transmitting method according to claim 1, wherein a packet is transmitted at an interval according to a packet size, and the amount of data to be transmitted to the network per unit time is dynamically changed.

5.   A packet transmission apparatus comprising:

time calculating means for calculating time necessary for transmitting each packet; and

means for controlling a timing of packet transmission based on the time for transmitting each packet, calculated by the time calculating means.

6.   A packet transmitting method comprising the steps of:

independently controlling a packet order and a packet flow rate in a transmission terminal on a packet network; and

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carrying out bandwidth guaranteeing for a plurality of flows.

7.   A packet transmission apparatus for transmitting a plurality of flows onto a packet network by carrying out bandwidth guaranteeing, comprising:

scheduling means for controlling an order of packets; and

shaping means for controlling a flow rate of packets,

wherein bandwidth guaranteeing is carried out for the plurality of flows by independently controlling a packet order and a packet flow rate.

8.   The packet transmission apparatus according to claim 7, wherein the shaping means controls the flow rate of packets by hardware.

9.   A bandwidth guaranteeing method comprising the steps of:

managing a state of resource utilization by a flow unit at a transmission side;

transferring data based on a single queue at a network intermediate node; and

guaranteeing packet transmission within a bandwidth specified for a flow, resource reservation having been made therefor, on a packet network, and limiting packet transmission in a bandwidth exceeding the specified bandwidth.

10.   The bandwidth guaranteeing method according to claim 9, wherein based on a label attached to a packet at the transmission side, at the network intermediate node, the flow having the resource reservation made therefor is distinguished from other flows, and set in a corresponding relation with a queue.

11.   The bandwidth guaranteeing method according to claim 10, wherein at the network intermediate node, data transfer is carried out based on a queue corresponding

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to the flow having the resource reservation made therefor and queues corresponding

to the other flows.